

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1. (Previously Presented): An electrodeposited copper foil, comprising:

a matte side surface, said matte side surface having a surface shape that is smooth with intermittently spaced knob-like projections;

wherein the surface roughness thereof is 2.2 to less than 4 μm , and the copper foil is an untreated copper foil.

2. (Previously Presented): An electrodeposited copper foil as set forth in claim 1, wherein said smooth matte side surface having said knob-like projections and said surface roughness of 2.2 to less than 4 μm is a surface of an untreated copper foil for bonding with a resin substrate and is further roughening treated by running a predetermined current through the foil for a predetermined time in an electroforming bath.

3. (Original): An electrodeposited copper foil as set forth in claim 2, wherein said electroforming bath is an acidic electroforming bath containing at least one of molybdenum, cobalt, nickel, iron, tungsten and arsenic.

4. (Previously Presented): An electrodeposited copper foil as set forth in claim 2 or 3, wherein said smooth matte side surface is further formed with a copper plating layer.

Submission Under 37 C.F.R. §1.114
Application No. 10/775,075
Attorney Docket No. 042100

5. (Previously Presented): An electrodeposited copper foil as set forth in claim 2 or 3, wherein said smooth matte side surface is further formed with a copper plating layer and at least one layer of nickel plating, zinc plating, cobalt plating, plating of an alloy of the same and a chromate treatment layer on that.

6. (Previously Presented): An electrodeposited copper foil as set forth in claim 1, wherein said smooth matte side surface having said knob-like projections and said surface roughness of 2.2 to less than 4 μm is a surface of an untreated copper foil for bonding with a resin substrate and is further formed with a copper plating layer and at least one layer of nickel plating, zinc plating, cobalt plating, plating of an alloy of the same and a chromate treatment layer on that.

7. (Withdrawn-Previously Presented): A method of producing an electrodeposited copper foil comprising electrolysis using an electrolyte containing copper as a main component and a compound having mercapto groups, at least one type of another organic compound, and chloride ions to form a copper foil wherein part of its surface comprises a rough surface having knob-like projections and a surface roughness of 2.2 to less than 4 μm .

Submission Under 37 C.F.R. §1.114
Application No. 10/775,075
Attorney Docket No. 042100

8. (Withdrawn): A method of producing an electrodeposited copper foil as set forth in claim 7, wherein an electroforming bath for a roughening treatment is an acidic electroforming bath containing at least one of molybdenum, cobalt, nickel, iron, tungsten and arsenic.

9. (Withdrawn-Previously Presented): A method of producing an electrodeposited copper foil comprising producing an electrodeposited copper foil having a matte side having a surface roughness of 2.2 to less than 4 μm using an electrolyte containing a compound having mercapto groups, at least one type of another organic compound, and chloride ions and roughening treating said matte side of said electrodeposited copper foil by running a predetermined current through it for a predetermined time in an electroforming bath.

10. (Previously Presented): An electrodeposited copper foil as set forth in claim 5, wherein said smooth matte side surface having said knob-like projections is further formed with a coupling agent treatment layer.

11. (Previously Presented): An electrodeposited copper foil as set forth in claim 6, wherein said smooth matte side surface having said knob-like projections and said surface roughness of 2.2 to less than 4 μm is further formed with a coupling agent treatment layer.

Submission Under 37 C.F.R. §1.114
Application No. 10/775,075
Attorney Docket No. 042100

12. (New): An electrodeposited copper foil as set forth in claim 1, wherein an electrolyte for producing the copper foil contains sodium 3-mercaptopropane sulfonate or hydroxyethylcellulose.